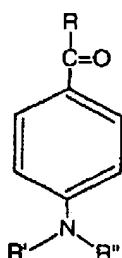


REMARKS:

The Applicants hereby affirm the election without traverse of Group I which includes claims 1, 4-8 and 19-20 and the further elected species made using an alkyl amino aryl compound wherein the claimed structure comprises two methyl groups. In affirmation of this election, the claims that are directed to the non-elected invention (claims 2, 3, and 9-18) have been canceled.

Claims 1, 4-8 and 19-20 have been rejected under 35 U.S.C. §102(e) as anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over the teachings of Shin et al (United States Patent 6,221,975). However, the Applicants do not believe that the invention now being claimed is anticipated by the teachings of Shin and the Examiner is accordingly respectfully requested to reconsider his position.

Claim 1 is directed to a process for making a functionalized lithium initiator by a two step process comprising (1) reacting m-diisopropenylbenzene with a tertiary alkyl lithium compound in an aromatic solvent at a temperature which is within the range the range of about 0°C to about 100°C to produce a dilithium initiator, and (2) reacting the dilithium initiator with an alkylaminoaryl compound of the structural formula:



wherein R, R', and R'' can be the same or different, wherein R is selected from the group consisting of hydrogen atoms, alkyl groups, aryl groups, alkaryl groups, and amino aryl groups, and wherein R' and R'' represent alkyl groups. The teachings of Shin do not disclose or suggest such a process for making a functionalized initiator. To the contrary the teachings of Shin relate to a process for making a functionalized polymer.

In the second step of claim 1 of the subject patent application a dilithium initiator is reacted with an alkylaminoaryl compound to make the functionalized initiator. This is in contrast to the teachings of Shin wherein a dilithium initiator is employed in the synthesis of a polymer which is subsequently reacted with a polar material to produce a polymer that is

functionalized at both of its terminals. In other words, the invention now being claimed is directed to a functionalized initiator while the teachings of Shin relating to the synthesis of a functionalized polymer. The teachings of Shin do not disclose or suggest any technique for making a functionalized initiator. Accordingly, the teachings of Shin do not anticipate the invention now being claimed.

The second step of claim 1 calls for reacting a dilithium initiator with an alkylaminoaryl compound having a specific structural formula to produce a functionalized initiator. This is in contrast to the teachings of Shin wherein a dilithium compound is employed to initiate the polymerization of monomers to produce a polymer. The polymer made by Shin is then reacted with a polar additive and an electrophilic material¹ to produce a functionalized polymer. The teachings of Shin do not disclose or suggest the synthesis of a functionalized initiator as is now being claimed.

Shin teaches the use of amine containing compounds to terminate living polymers. However, the teachings of Shin do not disclose or suggest the use of amine containing compounds in making functionalized initiators. Examples 1 and 2 of Shin illustrate this point. In the first step of Shin's examples, 1,3-bis(1-lithio-1,3,3'-trimethylbutyl)benzene is made by reacting tertiary-butyl lithium (t-BuLi) with diisopropenylbenzene. The 1,3-bis(1-lithio-1,3,3'-trimethylbutyl)benzene is then utilized as a dilithium initiator in the copolymerization of butadiene and styrene. Shin reports that a conversion of 99% was attained after 2 hours of reaction time. Then, the copolymer of styrene and butadiene is reacted with a dimethylamino benzophenone solution to make the terminally functionalized copolymer. The teachings of Shin do not suggest or imply the possibility of reacting an alkylaminoaryl compound with a difunctional initiator to make a functionalized lithium initiator. Accordingly, the teachings of Shin do not render the functionalized initiators now being claimed obvious.

Claims 1, 4-8 and 19-20 have been rejected under 35 U.S.C. §112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. The Examiner has noted that the claims fail to define the "dilithium initiator" as

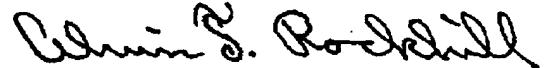
¹ The electrophilic materials that Shin notes as being useful include ketones, amino aldehydes, thioaminoketones, thioaminoaldehydes, and amides. The electrophilic materials that Shin identifies as being most useful include 4-dimethylaminobenzophenone, 4-diethylaminobenzophenone, and 4,4'-bis(diethylamino)benzophenone (see column 5, lines 5-14).

that derived from the step of reacting a tertiary-alkyl lithium with m-diisopropenylbenzene. However, this basis of rejection has been overcome by amending claim 1 to call for the dilithium initiator to be made by reacting m-diisopropenylbenzene with a tertiary alkyl lithium compound in an aromatic solvent at a temperature which is within the range the range of about 0°C to about 100°C. Accordingly, the amendment made to claim 1 overcomes the rejection made under 35 U.S.C. §112, second paragraph.

The teachings of Shin do not anticipate or render obvious any of the claims now pending in the subject patent application. This is because the teachings of Shin do not relate in any way to functionalized initiators. Shin only teaches the use of dilithium compounds for initiating the polymerization of monomers into polymers. Shin does not disclose or use functionalized initiators for any purpose.

The subject patent application is now believed to be in compliance with the requirements of 35 U.S.C. §102, §103, and §112. It is accordingly now in a condition for allowance and such an allowance is respectfully requested.

Respectfully submitted,



Attorney for Applicant(s)

Alvin T Rockhill, Reg. No. 30,417
Department 823
The Goodyear Tire & Rubber Company
1144 East Market Street
Akron, Ohio 44316-0001

Telephone: (330) 666-4659